UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,725	02/04/2004	Larric A. Deardurff	200209310-1	5630

22879 7590 12/28/2006

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
MARTIN, LAURA E	
ART UNIT	**PAPER NUMBER**
2853	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/28/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/772,725	DEARDURFF ET AL.	
	Examiner	Art Unit	
	Laura E. Martin	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-18 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-18 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dearduff et al. (US 6494942) in view of Matsubara et al. (US 6200676).

Dearduff et al. disclose the following claim limitations:

As per claim 3: an ink jet ink having a boronic acid dye and a coated print medium (column 10, line 7 and table 1).

As per claim 2: a printing system wherein a boronic acid dye comprises a boric acid group or boronic acid group (column 4, lines 3-10) and a dye selected from the group consisting of azo, triphenylmethane, anthraquinone, methane, xanthine, oxazine, thiazine, azine, thiazole, quinolinone, aminoketone, nitro, nitroso, phthalocyanine, acridine, indamine, and indophenol (column 2, lines 59-64).

Dearduff et al. do not disclose the following claim limitations:

As per claim 2: the coated print medium comprises a polyhydroxylated material having at least one hydroxyl group positioned for binding with the boronic acid dye.

Matsubara et al. disclose the following claim limitations:

As per claim 2: the coated print medium comprises a polyhydroxylated material having at least one hydroxyl group positioned for binding with the dye (column 2, lines 10-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink and medium taught by Dearduff et al. with the disclosure of Matsubara et al. in order to provide a higher quality image.

Claims 4, 5, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dearduff et al. (US 6494942) and Matsubara et al. (US 6200676), and further in view of Riou et al. (US 4877686).

Dearduff et al. as modified disclose the following claim limitations:

The ink and medium of claim 3.

Dearduff et al. as modified do not disclose the following claim limitations:

As per claim 4: a polyhydroxylated material that comprises a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound.

As per claim 5: at least two hydroxyl groups positioned on the same side of the polyhydroxylated compound.

As per claim 8: the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch.

As per claim 9: the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups.

Riou et al. discloses:

As per claim 4: a polyhydroxylated material that comprises a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound (column 3, lines 45-53).

As per claim 5: at least two hydroxyl groups positioned on the same side of the polyhydroxylated compound (column 3, lines 45-53).

As per claim 8: the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch (column 3, lines 50-53).

As per claim 9: the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups (column 3, lines 62-66).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the printing system of Deardurff et al. as modified with the polyhydroxylated material of Riou et al. in order to create a smooth printed image.

Claims 6, 7, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deardurff et al. (US 6494942), Matsubara et al. (US 6200676), and Riou et al. (US 4877686), and further in view of Kojima et al. (US 5380612).

Deardurff et al. as modified disclose: the printing systems of claims 4 and 9.

Deardurff et al. as modified do not disclose:

As per claim 6: at least two hydroxyl groups are positioned on adjacent atoms.

As per claim 7: at least two hydroxyl group are positioned on non-adjacent atoms.

As per claim 10: at least one hydroxyl group on each of the at least two hydroxylate compounds is positioned on the same side of the polyhydroxylated material.

As per claim 11: the hydroxylated compound comprises silica or a modified silica.

Kojima et al. discloses:

As per claim 6: at least two hydroxyl groups are positioned on adjacent atoms (column 8, lines 43-66).

As per claim 7: at least two hydroxyl group are positioned on non-adjacent atoms (column 8, lines 43-66).

As per claim 10: at least one hydroxyl group on each of the at least two hydroxylate compounds is positioned on the same side of the polyhydroxylated material (column 8, lines 43-66).

As per claim 11: the hydroxylated compound comprises silica or a modified silica (column 8, lines 43-66).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the printing system of Deardurff et al. as modified with the disclosure of Kojima et al. in order to better disperse the coating solution.

Claims 12-16, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deardurff et al. (US 6494942) in view of Matsubara et al. (US 6200676), Riou et al. (US 4877686), and Nigam et al. (US 5973025).

Deardurff et al. disclose:

As per claim 12: a method of reducing dye migration on a print medium (column 1, lines 49-55) and a printed image having improved permanence comprising: providing a print medium having a coating layer (column 10, line 7, table 1); applying an inkjet ink comprising a boronic acid dye (column 4, lines 3-10) to the print medium.

As per claim 16: the boronic acid dye comprises a boric acid group or boronic acid group (column 4, lines 3-10) and a dye selected from the group consisting of azo, triphenylmethane, anthraquinone, methane, xanthine, oxazine, thiazine, azine, thiazole, quinolinone, aminoketone, nitro, nitroso, phthalocyanine, acridine, indamine, and indophenol (column 2, lines 59-64).

As per claim 18: a boronic acid dye (column 4, lines 3-10) and a coated print medium (column 10, line 7, table 1).

Deardurff et al. do not disclose:

As per claim 12: forming a covalent bond between the boronic acid dye and the coating layer.

As per claim 13: a coating layer on the coated print medium comprising a polyhydroxylated material.

As per claim 14: a material comprising a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound positioned on the same side of the polyhydroxylated compound.

As per claim 15: a material wherein the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch.

As per claim 18: boronic acid dye covalently bonded.

As per claim 20: the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups.

Matsubara et al. disclose:

As per claim 13: a coating layer on the coated print medium comprising a polyhydroxylated material having at least one hydroxyl group positioned for binding with the dye (column 2, lines 10-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink and medium taught by Dearduff et al. with the disclosure of Matsubara et al. in order to provide a higher quality image.

Riou et al. disclose:

As per claim 14: a material comprising a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound positioned on the same side of the polyhydroxylated compound (column 3, lines 45-53).

As per claim 15: a material wherein the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch (column 3, lines 50-53)

As per claim 20: the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups (column 3, lines 62-66).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the printing system of Deardurff et al. with the polyhydroxylated material of Riou et al. in order to create a smooth printed image.

Nigam et al. discloses:

As per claim 12: forming a covalent bond between the boronic acid dye and the coating layer (column 9, lines 43-55).

As per claim 18: boronic acid dye covalently bonded (column 9, lines 43-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the a method of reducing dye migration on a print medium and a printed image having improved permanence taught by Deardurff et al. with the covalent bond of Nigam et al. in order to provide a stronger printed image.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deardurff et al. (US 6494942), Matsubara et al. (US 6200676), Riou et al. (US 4877686), and Nigam et al. (US 5973025) in further view of Kojima et al. (US 5380612).

Deardurff et al. teaches a boronic acid dye and a coating layer comprising, and Nigam et al. teaches forming a covalent bond between boric acid and a coating layer; however, Deardurff et al. as modified does not teach at least two hydroxyl groups in the polyhydroxylated compound or hydroxyl group in the at least two hydroxylated compounds.

Kojima et al. teaches at least two hydroxyl groups in the polyhydroxylated compound or hydroxyl group in the at least two hydroxylated compounds (column 8, lines 43-66)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Deardurff et al. as modified in order to better disperse the coating solution.

Response to Arguments

Applicant's arguments with respect to claims 2-18 and 20 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura E. Martin

12/21/06

MANISH S. SHAH
PRIMARY EXAMINER